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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,202	10/20/2003	Kohji Murayama	JP920010391US1	4460

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EXAMINER	
CANNING, ANTHONY J	
ART UNIT	PAPER NUMBER
2879	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/689,202	MURAYAMA ET AL.	
	Examiner	Art Unit	
	Anthony J. Canning	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The Request for Continued Examination

1. The request for continued examination of the instant application was received and entered on 9 November 2006.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aziz et al. (U.S. 2002/0135296 A1) in view of Ogura et al. (U.S. 2002/0070663 A1).

4. Regarding claim 1, Aziz et al. disclose an organic electroluminescent device (paragraph 0010, lines 1-3), including: a substrate (see Fig. 3, item 31; paragraph 0066, lines 7-8); electrodes including a first electrode (see Fig. 3, item 38; paragraph 0066, lines 8-9) formed on the substrate, and a second electrode (see Fig. 3, item 32; paragraph 0066, line 20) disposed to be spaced from the first electrode (see Fig. 3, all items between 32 and 38); a function layer formed between the electrodes, the function layer including a carrier injection layer, a carrier transport layer and a luminous layer (see Fig. 3, item 35; paragraph 0066, lines 11-14); and a buffer layer (see Fig. 3, item 34; paragraph 0064; paragraph 0066, lines 15-16) in contact with the second

electrode (see Fig. 3, items 32 and 34; paragraph 0066, item 34, the buffer layer, is in direct contact with item 32, the second electrode) and disposed to be spaced between the second electrode and a protective film layer (paragraph 0042, page 5, lines 23-30; the cathode is what the examiner refers to as the first electrode, the cathode has a thermal protective layer thereon, therefore the buffer layer is between the second electrode and a protective layer), the buffer layer having a density lower than the density of the luminous layer and the second electrode (page 4, right hand column specifies the buffer layer can be a metal oxide, aluminum oxide is a buffer material commonly used in organic electroluminescent devices, and the luminous layer is hydroxyquinoline aluminum, which is the luminous layer proposed in the specification of the instant application; the second electrode is indium tin oxide [paragraph 0011] which is also given as the electrode material in the specification of the instant application). Aziz et al. fail to specifically disclose that the metal oxide buffer layer is chosen to have a density lower than the density of the luminous layer and the second electrode, such as aluminum oxide.

In the same field of endeavor, Ogura et al. disclose an organic electroluminescent device (see Fig. 2; paragraph 0072), which uses aluminum oxide (paragraph 0074). The buffer layer of aluminum oxide prevents moisture from damaging the electroluminescent layer (paragraph 0026).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic electroluminescent device of Aziz et al. to include that the buffer layer having a density lower than the density of the luminous layer and the second electrode, such as aluminum oxide, as taught by Ogura et al., to prevent moisture from damaging the electroluminescent layer.

5. Regarding claim 2, Aziz et al. and Ogura et al. disclose the organic electroluminescent device according to claim 1, wherein the buffer layer is formed in a distance of 20 nm or less from an upper end surface of the function layer (paragraph 0042, lines 65-67). The region (see Fig. 3, item 33, not including item 34) between the buffer layer (see Fig. 3, item 34) and the function layer (see Fig. 3, item 35) can be any thickness between 5 and 500 nm, the lower end of that range falls within the limitation of 20 nm or less.

6. Regarding claim 3, Aziz et al. and Ogura et al. disclose the organic electroluminescent device according to claim 1, wherein the buffer layer contains an oxide (paragraph 0042, lines 122-123).

7. Regarding claim 4, Aziz et al. and Ogura et al. disclose the organic electroluminescent device according to claim 1, wherein the buffer layer contains aluminum oxide (paragraph 0042, lines 122-123). Aziz et al. teach that the buffer layer can be made from a metal oxide, which encompasses all metal oxides, including aluminum oxide.

8. Regarding claim 10, Aziz et al. disclose an organic electroluminescent display apparatus including a plurality of organic electroluminescent devices (paragraph 0010, lines 8-10; paragraph 0066, lines 1-3) formed on a substrate (see Fig. 3, item 31; paragraph 0066, lines 7-8), wherein the organic electroluminescent device includes: electrodes including a first electrode adjacent to the substrate (see Fig. 3, items 31 and 38; paragraph 0066, lines 8-9) and a second electrode disposed to be spaced from the first electrode (see Fig. 3, item 38; paragraph 0066, line 20), the second electrode includes an upper electrode layer and a lower electrode layer (paragraph 0074, lines 15-17, layers of conductive carbon or conjugated polymers are interpreted by the examiner to be upper and lower layers of the electrode); a function layer (see Fig. 3, item

35; paragraph 0066, lines 11-14) formed between the electrodes (see Fig. 3, items 32, 35, and 38), the function layer including a carrier injection layer, a carrier transport layer and a luminous layer (see Fig. 3, item 35; paragraph 0066, lines 13-14; specifically the electron injection layer, the hole carrier transport layer and the luminous layer); and a buffer layer (see Fig. 3, item 34; paragraph 0064; paragraph 0066, lines 15-16) in contact with the second electrode and disposed between the upper electrode and the lower electrode (see Fig. 3, items between 32, 34 and 38), the buffer layer having a density lower than the density of the luminous layer and the second electrode (page 4, right hand column specifies the buffer layer can be a metal oxide, aluminum oxide is a buffer material commonly used in organic electroluminescent devices, and the luminous layer is hydroxyquinoline aluminum, which is the luminous layer proposed in the specification of the instant application; the second electrode is indium tin oxide [paragraph 0011] which is also given as the electrode material in the specification of the instant application). Aziz et al. fail to specifically disclose that the metal oxide buffer layer is chosen to have a density lower than the density of the luminous layer and the second electrode, such as aluminum oxide.

In the same field of endeavor, Ogura et al. disclose an organic electroluminescent device (see Fig. 2; paragraph 0072), which uses aluminum oxide (paragraph 0074). The buffer layer of aluminum oxide prevents moisture from damaging the electroluminescent layer (paragraph 0026).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic electroluminescent device of Aziz et al. to include that the buffer layer having a density lower than the density of the luminous layer and the second

electrode, such as aluminum oxide, as taught by Ogura et al., to prevent moisture from damaging the electroluminescent layer.

9. Regarding claim 11, Aziz et al. and Ogura et al. disclose the organic electroluminescent display apparatus according to claim 10, wherein the buffer layer is formed in a distance of 20 nm or less from an upper end surface of the function layer (paragraph 0042, lines 65-67). The region (see Fig. 1, item 13, not including item 14) between the buffer layer (see Fig. 1, item 14) and the function layer (see Fig. 1, item 15) can be any thickness between 5 and 500 nm, the lower end of that range falls within the limitation of 20 nm or less.

10. Regarding claim 12, Aziz et al. and Ogura et al. disclose the organic electroluminescent display apparatus according to claim 10, wherein the buffer layer contains an oxide (paragraph 0042, lines 122-123).

11. Regarding claim 13, Aziz et al. and Ogura et al. disclose the organic electroluminescent display apparatus according to claim 10, wherein the buffer layer contains aluminum oxide (paragraph 0042, lines 122-123). Aziz et al. teach that the buffer layer can be made from a metal oxide, which encompasses all metal oxides, including aluminum oxide.

Regarding claims 5 and 14, Aziz et al. and Ogura et al. disclose the organic electroluminescent device according to claims 1 and 10, further including: a thin layer (see Fig. 4, item 47; paragraph 0067, line 8) disposed contiguously to the function layer (see Fig. 4, items 45 and 46; paragraph 0067, lines 17-21) and containing any of an alkaline metal element and an alkaline earth metal element (paragraph 0042, lines 132-134). Although Aziz et al. does disclose that the thin layer can be thinner than 20 nm (paragraph 0092), Aziz et al. fails to specifically disclose that the thin layer is approximately 0.5 nm. However, to establish unexpected results

over a claimed range, applicants should compare a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range. *In re Hill*, 284 F.2d 955, 128 USPQ 107 (CCPA 1960). An affidavit or declaration under 37 CFR 1.132 must compare the claimed subject matter with the closest prior art to be effective to rebut a *prima facie* case of obviousness. *In re Burckel*, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979). "A comparison of the *claimed* invention with the disclosure of each cited reference to determine the number of claim limitations in common with each reference, bearing in mind the relative importance of particular limitations, will usually yield the closest single prior art reference." *In re Merchant,* 575 F.2d 865, 868, 197 USPQ 785, 787 (CCPA 1978) (emphasis in original). Where the comparison is not identical with the reference disclosure, deviations therefrom should be explained, *In re Finley*, 174 F.2d 130, 81 USPQ 383 (CCPA 1949), and if not explained should be noted and evaluated, and if significant, explanation should be required. *In re Armstrong*, 280 F.2d 132, 126 USPQ 281 (CCPA 1960) (deviations from example were inconsequential).

Response to Arguments

12. Regarding the applicant's argument that Aziz et al. (U.S. 2002/0135296 A1) does not disclose a buffer layer in contact with the electrode, the examiner respectfully disagrees. As seen in figure 3, the buffer layer (item 34; paragraph 0066) is in contact with the electrode (item 32; paragraph 0066)

Contact Information

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Canning
Patent Examiner
Art Unit 2879
22 January 2007

K Shuharay
2/1/07